FINDABILITY SCIENCES

USING AI FOR DEMAND FORECASTING & INVENTORY MANAGEMENT

#FindabilitySolves

THE PROBLEM

Every business looks to find new ways to increase earnings, reduce risks and improve production efficiency. And the first steps to this is managing inventory and forecasting demand. One of North America's leading provider of commercial and domestic HVAC solutions wanted to optimize inventory planning and predict sales for 200+ geographically dispersed locations. The client's vast product portfolio of over 1100 SKUs was difficult to optimize using the traditional methods of extrapolatory demand forecasting. Stock-outs that adversely impacted fulfilment or excess inventory that resulted in high warehousing and holding costs were a cause of concern. What they needed was to improve demand forecasting and inventory management for individual distribution centres. Findability Sciences used their multi-algorithmic time-series forecasting solution to stabilize the volume and value prediction accuracy at 90% and above.
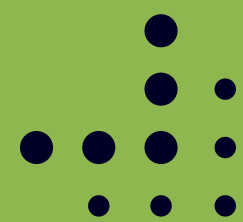
THE SOLUTION

A custom forecasting solution was developed using machine learning and deep learning algorithms like ARIMA, ETS, PROPHET, and Neural Network, which were ensembled to obtain higher accuracy against the traditional time-series forecasting algorithms (exponential smoothing, moving averages, etc.). A dashboard was created with role-based access where the client's team could view the forecasting outcomes at different granularities.

Accurate prediction of sales volume was the client's topmost priority, for which not only internal, but external and unstructured sourced of data had to also be analyzed. During the initial phase, Findability Sciences improved the prediction accuracy of the overall volume and value sales, stabilizing the same at over 90%. In the subsequent stages, granular forecasting models were developed to predict the SKU-level, volume and value sales for different regions in the US and Canada.

THE SUCCESS

The custom forecasting solution helped improve the forecasting accuracy from **70% to 90%**. The client, being dependent on a vast network of suppliers for its US based assembly operations, now equipped with the AI infrastructure to accurately predict sales volume, could avoid stock-outs and transport products to the market more efficiently, which optimized the supply chain and indirectly reduced several costs. The adoption of AI-powered forecasting has been correlated with up to 10% reduction in stock-out incidents, resulting in a **revenue benefit of $22.5 Million.**

What started as a pilot for 4 regions and 200 SKUs, scaled within a year into an enterprise AI system for predicting sales of **1100+ SKUs across 200+ locations.**

Presently, Findability Sciences executes over **150,000 predictions each month** as part of this project - MAPE (Mean Absolute percentage Error) being the chief metric for evaluating the model effectiveness. The forecasting models from Findability Sciences reduced the MAPE from **30% to 10%.**

THE SUCCESS

Forecasting accuracy increased from
70% to 90%

Predicting sales of
110+ SKUs across 200+ locations
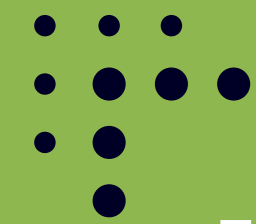
Revenue benefit of
$22.5 million

Predictions each month
150,000

Reduced MAPE from
30% to 10%

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